

## REMARKS/ARGUMENTS

The Office action dated April 29, 2010 has been received and carefully considered. By this amendment, claims 1, 3-5, 9, 18, 20, 23, 26-29, and 32 are amended, and claims 2 has been canceled. No new claims have been added. After entry of this Amendment, claims 1, and 3-34 will be pending, with claims 10-17 and 34 being withdrawn. In view of these amendments and the following remarks, Applicants respectfully request reconsideration.

### Election/Restrictions

Telephonic election of claims 1-9 and 18-33 without traverse is confirmed. Claims 10-17 and 33, second instance, (renumbered as 34 herein) are withdrawn.

### Claim Objection

The office objected **claims 1-4** as lacking an indication that the claims are drawn to a composition of matter. The applicant amended claims 1-4 accordingly. The objection should be overcome.

The office also objected **claim 28** due to an informality. The applicant amended claim 28 accordingly. The objection should be overcome.

### 35 USC §112

The Office rejected **claims 18, and 26-28** as being indefinite for failing to identify the intended result of the combination. Claim 18 was amended to point out that the hydrocarbon feedstock is added in an amount effective to reduce corrosivity of the hydrocarbon feedstock, which was previously determined. Claim 26 was amended to specify that the added naphthenic acids are a beta fraction of naphthenic acids and are added in an amount effective to reduce naphthenic acid corrosivity. The rejections should be overcome.

### 35 USC §102/35 USC §102

The Office rejected **claims 1-9** as being anticipated by, or in the alternative obvious over Petersen (U.S. Pat. No. 5,182,013).

As amended herein, claim 1 (and dependent claims 3-4) expressly requires that "...the fraction of the second refinery feedstock in the combination is at least in part a function of the beta fraction of total naphthenic acids in the second refinery feedstock..." and that "...the amount of the beta fraction of total naphthenic acids in the second refinery feedstock is effective to reduce naphthenic acid corrosivity of the first refinery feedstock...". These elements are neither taught nor suggested in the '013 patent.

Likewise, amended claim 5 (and dependent claims 6-8) requires "...a composition [that is] enriched in a beta fraction of naphthenic acids..." and that the "...amount [is] determined to be effective to reduce naphthenic acid corrosivity of the first refinery crude...". Again, these elements are neither taught nor suggested in the '013 patent.

Amended claim 9 expressly requires that "...the first feedstock is determined to have a specific quantity of alpha naphthenic acids..." that "...the second feedstock is determined to have a specific quantity of beta naphthenic acids...", and that "...the second feedstock is added to the mixture in an amount such that corrosivity of the mixture is reduced as compared to corrosivity of the first feedstock..." Once more, these elements are neither taught nor suggested in the '013 patent.

Petersen's teaching is reflective of the general knowledge in the art that all naphthenic acids are equally deleterious and lead to corrosivity. On the contrary, all claims in the present application are drawn to the recognition that the beta fraction of naphthenic acids is desirable and indeed reduces corrosivity, even if the total naphthenic acid number increases. Clearly, such discovery is neither recognized nor appreciated in Petersen. Consequently, it is dilution of high naphthenic acids feedstocks with low naphthenic acids feedstocks that Petersen regards as a solution to naphthenic acid corrosivity.

Regarding the office's assertion that Petersen's process steps would result in the same product, the applicant respectfully disagrees. Nowhere in the '013 patent is there any reference to

any beta fraction of naphthenic acids. Thus, the office's assertion is not supported with respect to the argument of "the same product". With respect to a possibly inherent character of a hydrocarbon feedstock in Petersen, it is noted that inherency cannot be established based on conjecture and/or probabilities or possibilities. See *In re Oelrich*, 666 F.2d 578, 581, 212 USPQ, Appeal No. 2004-0896 Application No. 09/751,774 Page 6323, 326 (CCPA 1981); *Ex parte Skinner*, 2 USPQ2d 1788, 1788-1789(Bd. Pat. App. & Int. 1986). The examiner, in relying on a theory of inherency, must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flow from the teachings of the applied prior art. See *In re Robertson*, 169 F.3d 743, 745, 49USPQ2d 1949, 1950-51 (Fed. Cir. 1999). The examiner has not provided persuasive support for an inherency theory.

### **35 USC §102**

The Office rejected **claims 18-21, 26-27, 29, and 32-33** as being anticipated by Petersen. The applicant respectfully disagrees, especially in view of the amendments herein.

Anticipation under 35 U.S.C. § 102 requires the presence in a single prior art disclosure of *each and every element of a claimed invention*. *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631, 2 U.S.P.Q.2D (BNA) 1051, 1053 (Fed. Cir. 1987); *Carella v. Starlight Archery*, 804 F.2d 135, 138, 231 U.S.P.Q. (BNA) 644, 646 (Fed. Cir.), *modified on reh'd*, 1 U.S.P.Q.2D (BNA) 1209 (Fed. Cir. 1986); Anticipation under Section 102 also requires "the presence in a single prior art disclosure of all elements of a claimed invention *arranged as in that claim*." *Panduit Corp. v. Dennison Manufacturing Co.*, 774 F.2d 1082, 1101, 227 U.S.P.Q. (BNA) 337, 350 (Fed. Cir. 1985) (quoting *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548, 220 U.S.P.Q. (BNA) 193, 198 (Fed. Cir. 1983)).

As amended, claim 18 (and dependent claim 19) expressly requires the steps of "...determining a beta naphthenic acid content of a feed..." and "...determining corrosivity of a hydrocarbon feedstock...", and that "... the feed [is combined] with the hydrocarbon feedstock in an amount effective to reduce corrosivity of the hydrocarbon feedstock..." These elements are not taught by Petersen. All Petersen teaches is dilution of total naphthenic acids. In contrast, the presently claimed subject matter increases naphthenic acids to a corrosive feedstock.

As amended, claim 20 (and dependent claim 21) requires the steps of "...determining content of a beta fraction of total naphthenic acids in a second refinery feedstock..." and that "...the amount of the second refinery feedstock in the combined refinery feedstock is a function of the beta fraction of total naphthenic acids in the second refinery feedstock such that the combined naphthenic corrosivity is less than the naphthenic corrosivity of the first refinery feedstock...", which is not taught by Petersen.

As amended, claim 26 (and dependent claim 27) requires a step of "...increasing the total acid number using a beta fraction of naphthenic acids in an amount effective to reduce naphthenic acid corrosivity of the feedstock...", which is not taught by Petersen. Indeed, such step is contrary to the '013 patent.

As amended, claim 29 expressly requires a step of "...determining a ratio of beta naphthenic acids to alpha naphthenic acids in the feed..." and a further step of "...processing the hydrocarbon feed such that the ratio of beta naphthenic acids in the feed to alpha naphthenic acids in the feed increases...", which is not taught by Petersen.

As amended, claim 32 (and dependent claim 33) requires a step of "...determining a quantity of a beta fraction of total naphthenic acids in a refinery feedstock..." and a further step of "...providing information correlating the quantity of the beta fraction with reduced naphthenic acid corrosivity of the refinery feedstock...", which is not taught by Petersen.

For at least these reasons, and in view of the amendments herein, the rejection of claims 18-21, 26-27, 29, and 32-33 as being anticipated by Petersen should be overcome.

### 35 USC §103

The Office rejected **claims 22, 28, and 31** as being obvious over Petersen. Once more, the applicant respectfully disagrees, especially in view of the amendments herein.

With respect to claim 22, it is noted that not all of the claimed elements are present in Petersen as pointed out above for the parent claim 20. Moreover, the examiner noted that it would have been obvious to acquire a feedstock with a certain naphthenic acid corrosivity from

Athabasca, since this would be a well known source of oil sand. While the applicant agrees that Athabasca is a well known source of oil sand, it is pointed out that Athabasca oil sands are also well known as having a high content of naphthenic acids. Thus, the knowledge of the person of ordinary skill in the art would dictate NOT to use Athabasca oil sands to reduce combined naphthenic corrosivity.

Regarding claim 28 it is noted that not all of the claimed elements are present in Petersen as pointed out above for the parent claim 26. Moreover, the examiner noted that more corrosive crude oils would have higher acid numbers, and that blending would result in a stream with higher TAN number. Thus, according to the office's reasoning, corrosivity would increase, which is contrary to the claimed subject matter.

With respect to claim 31, it is noted that not all of the claimed elements are present in Petersen as pointed out above for the parent claim 29. Moreover, the examiner noted that the person of ordinary skill in the art would readily recognize that opportunity crudes would be a suitable source to apply to the Petersen process. It is entirely unclear how this would benefit the process in the '013 patent. Opportunity crudes are characterized by their high TAN number, which is thus exactly contrary to the proposed use in Petersen.

For at least these reasons, and in view of the amendments herein, the rejection of claims 22, 28, and 31 as being obvious over Petersen should be overcome.

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The Office rejected **claims 23-25** as being obvious over Kaufman (U.S. Pat. No. 1,986,775) in view of Petersen. The applicant respectfully disagrees, especially in view of the amendments herein.

As amended herein, claim 23 (and dependent claims 24-25) expressly require a step of "... combining at least a portion of the fraction comprising the beta fraction with the refinery feedstock in an amount effective to reduce naphthenic acid corrosivity..." Such is not the case in either Kaufman and Petersen. Indeed, it should be noted that both references expressly associate naphthenic acids with corrosivity and fail to make any distinction between a corrosive alpha fraction and a corrosion inhibiting beta fraction.

Moreover, the examiner seemed to argue that it would have been obvious to blend the naphthenic acids free lubricating oil of Kaufman with the original crude of Petersen. While such combination would indeed read on Petersen, it is noted that it is NOT the naphthenic acids free fraction that the claims require but the naphthenic acids (beta fraction) containing fraction. Clearly, Petersen fails to motivate such combination but teaches against such combination.

For at least these reasons, and in view of the amendments herein, the rejection of claims 23-25 as being obvious over Kaufman in view of Petersen should be overcome.

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The Office rejected **claim 30** as being obvious over Petersen in view of Blum (U.S. Pat. No. 5,820,750). The applicant once more respectfully disagrees, especially in view of the amendments herein.

First, it is noted that claim 30 is dependent on amended claim 29 and as such lacks all of the elements in Petersen as pointed out above. A combination with Blum fails to remedy these defects. Indeed, Blum teaches that hydroprocessing removes total naphthenic acids as evidenced by the reduction in TAN number. Clearly, Blum fails to recognize or suggest a difference in naphthenic acids with respect to alpha and beta fraction as presently claimed. Therefore, the step of determining a ratio of beta naphthenic acids to alpha naphthenic acids in the feed can not be present in Blum. Still further, Blum fails to provide any motivation for combination of the hydrothermally processed materials as his process already solves the problem of high TAN numbers.

For at least these reasons, and in view of the amendments herein, the rejection of claim 30 as being obvious over Petersen in view of Blum should be overcome.

**Request For Allowance**

Claims 1 and 3-34 are pending in this application, with claims 10-17 and 34 being withdrawn. The applicant requests allowance of all pending claims.

Respectfully submitted,  
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